IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Gudermann et al.	Art Unit: 1772
Application No: 10/596,746	Examiner: D. M. White
Confirmation No: 1040	
Filed: April 16, 2007	Atty. Docket No: 37998-237472
For: METHOD AND DEVICE FOR RECORDING MICROSCOPIC IMAGES	Customer No: 26694 PATENT & TRADEMARK OFFICE

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant submits herewith an Appeal Brief, pursuant to 37 C.F.R. §1.192. A Notice of Appeal was filed on April 8, 2011, along with a Request for Pre-Appeal Brief Review. The Decision on Pre-Appeal Brief Review was issued on May 3, 2011. Therefore, the due date for filing an Appeal Brief is June 8, 2011.

Please charge the required fee of $540, and any additional fees necessary, or credit any refunds, to Deposit Account No. 22-0261.

REAL PARTIES IN INTEREST

The real party in interest is Innovatis AG by virtue of assignment from the inventors.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to the Appellant or the Appellant's legal representative, or the assignee, that will directly affect or will be directly affected by or have bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

Claims 1, 5-18, 20-22 and 25-27 have been finally rejected, and are appealed.

Claims 2-4, 19, and 23-24 have been cancelled.

STATUS OF AMENDMENTS

A response to the final Office Action of November 8, 2010 was filed on February 8, 2011 and has been entered, as indicated in the Advisory Action of February 22, 2011. No further amendments have been filed.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The invention provides a method for recording microscopic images with high optical resolution of particles or organisms suspended in a liquid contained in a flow cuvette. The suspension is introduced into the flow cuvette and an image of the suspension is recorded on an optical sensor, whilst the optical sensor and flow cuvette are moving relative to one another. In particular embodiments, the particles or organisms are allowed to sink or rise in the cuvette, and are imaged with high optical resolution, whereas the other regions of the cuvette are imaged with the optical sensor. In some embodiments, a light source is provided, e.g. of bright or dark field, or fluorescent illumination.

Disclosed and claimed is a method for recording microscopic images with high optical resolution, of particles or organisms suspended in a liquid contained in a flow

cuvette, comprising introducing the suspension into a flow cuvette (described, *e.g.*, at page 4, line 3 of the specification), and recording the image of the suspension by an optical sensor (described, *e.g.*, at page 6, lines 12-14), wherein the optical sensor and flow cuvette are moving relative to one another while the contents of the flow cuvette are imaged (described, *e.g.*, at page 6, lines 19-21); and said sensor is moving along the flow cuvette (described, *e.g.*, at page 8, lines 13-14) (Claim 1). The particles or organisms may be allowed to sink (Claim 5, disclosed, *e.g.*, at page 5, line 7-8) or float (Claim 6, disclosed, *e.g.*, at page 5, line 19) and imaged with high resolution (disclosed, *e.g.*, at page 5, lines 7-8), with the remainder of the contents of the cuvette covered by the optical sensor (Claim 6). The sinking or rising of the particles/organisms may be effected by biological techniques, physical techniques, chemical techniques, sedimentation or buoyancy (Claim 7, disclosed, *e.g.*, at page 5, lines 7-22 of the specification). The suspension may be admixed with stains prior to the introduction step (Claim 17, described, *e.g.*, at page 6, lines 1-2).

The cell may be illuminated by a light source on the opposite side of the flow cuvette from the optical sensor and an objective sensor (Claim 8, disclosed, *e.g.*, at page 8, lines 19-20), which illumination may be bright field illumination (Claim 10) dark field illumination (Claim 11) phase contrast illumination (Claim 12), or a combination thereof (Claim 16), described, *e.g.*, at page 5, lines 23-26. The method may further comprise providing a screen and lens system on the same side of the flow cuvette as the light source (Claim 25,), in particular a condenser (Claim 26).

The light source may also be placed on the same side as the optical sensor and an objective sensor (claim 9), which illumination may be, for example, fluorescence illumination (Claim 13), and/or may have a defined spectral intensity produced by a suitable light source or the insertion of one or more filters (Claim 14). One or more of the filters may be changed automatically or manually (Claim 18). The filters may also be designed such that the optical sensor is illuminated with a defined spectral intensity distribution of incident light (Claim 15). The illumination may be fluoresence illumination, spectral intensity distribution of the incident light, or a combination thereof (Claim 27).

Also disclosed is a device for recording microscopic images with high optical resolution of particles or organisms suspended in a liquid, wherein the suspension is

introduced in a flow cuvette, and the image is recorded by an optical sensor, and further wherein the optical sensor and flow cuvette are movable along the flow cuvette and the contents of the measuring cell can be imaged (Claim 20, disclosed, *e.g.*, at page 5, lines 7-27, and further detailed in Figures 2-5). In the device, a light source can be situated on one side of the flow cuvette, and an objective sensor and the optical sensor are located on the other, opposite side of the measuring cell (Claim 21), or a light source may be situated on the same side of the flow cuvette as an objective sensor, and the optical sensor (Claim 22).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 5-18, and 20-27 are properly rejected under 35 USC § 103(a) as being unpatentable over Bukshpan et al. (US 2002/0198928) in view of Ravkin et al. (US 2003/0134330).

ARGUMENT

1. Claims 1, 5-18, and 20-27 are not obvious over Bukshpan et al. (US 2002/0198928) in view of Ravkin et al. (US 2003/0134330).

The current claims relate to a device and method wherein microscopic images of particles are recorded by means of a flow cuvette in which a suspension is introduced, and an optical sensor, the flow cuvette and optical sensor moving relative to one another during the measurement. A key feature, as recited in the claims, is that the optical sensor and flow cuvette are moving relative to one another while the contents of the flow cuvette are imaged. (See, *e.g.*, claim 1). Bukshpan et al. fails to teach any method or device in which a flow cuvette and an optical sensor move relative to one another during the optical recording of microscopic images, as required by independent claims 1 and 20. Thus, Bukshpan et al. fails to disclose this feature.

This deficiency is not remedied by combining Bukshpan's teaching with Ravkin et al., since Ravkin does not disclose that a movement of a detector during the measurement occurs. Ravkin discloses essentially a system in which a detector moves stepwise from one reaction well to the next reaction well of a microtiter plate, without intermediate measurement. This is completely different from the present method and system, which provides for continuous measurements as the flow cuvette and optical sensor move

relative to each other. Ravkin does not teach or suggest that a measurement during the movement of the detector shall happen. To the contrary, the skilled person would readily recognize that in the method disclosed by Ravkin, the actual measurement of the reaction well can only be performed when the optical sensor (camera) is placed for example over each successive reaction well. The skilled person would not interpret anything disclosed by Ravkin to mean that image measurement will be continued during the shift of the sensor from one well to another.

Thus, even if Ravkin et al. and Bukshpan et al. were combined, it would not result in the present invention, as a person skilled in the art would not conclude that that during movement the flow cuvette should be imaged, as taught by the present invention.

In view of the above, it is respectfully requested that the rejection of claims 1, 5-18, and 20-27 under 35 USC § 103(a) be reversed.

CONCLUSION

In conclusion, it is respectfully submitted that the pending claims are in condition for allowance.

Appellant respectfully requests that the Examiner's rejections be reversed and the application be passed to issue.

Respectfully submitted,

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CLAIMS APPENDIX

Appealed Claims:

1. (Previously presented) A method for recording microscopic images with high optical resolution of particles or organisms suspended in a liquid contained in a flow cuvette, comprising introducing the suspension into a flow cuvette, and recording the image of the suspension by an optical sensor, wherein the optical sensor and flow cuvette are moving relative to one another while the contents of the flow cuvette are imaged; and said sensor is moving along the flow cuvette.

2-4. (Canceled)

5. (Previously presented) The method according to claim 1 further comprising allowing the particles to sink onto the ground of flow cuvette or into a region above the ground, wherein only part of the flow cuvette contains the particles or organisms to be examined, imaging the ground or the region above with a high optical resolution, and covering the ground or the region above by the optical sensor.

6. (Previously presented) The method according to claim 1 further comprising allowing the particles to rise to an upper limiting surface of the flow cuvette or into a region below the upper limiting surface, wherein only part of the flow cuvette contains the particles or organisms to be examined, imaging the upper limiting surface or the region below with a high optical resolution, and covering the upper limiting surface or the region below by the optical sensor.

7. (Previously presented) The method according to claim 5, wherein said sinking or rising of the objects within the flow cuvette can be effected by one or more of the following: biological techniques, physical techniques, chemical techniques, sedimentation, and buoyancy.

8. (Previously presented) The method according to claim 1, further comprising providing transmitted light illumination, wherein a light source is situated on one side of the flow cuvette, and the optical sensor and an objective sensor are located on the opposite side of the flow cuvette.

9. (Previously presented) The method according to claim 1 further comprising providing incident light illumination by situating a light source, an objective, and the optical sensor on the same side of the flow cuvette.

10. (Previously presented) The method according to claim 8, wherein the transmitted light illumination is bright field illumination.

11. (Previously presented) The method according to claim 8, wherein the transmitted light illumination is dark field illumination.

12. (Previously presented) The method according to claim 8, wherein the transmitted light illumination is phase contrast illumination.

13. (Previously presented) The method according to claim 9, wherein the incident light illumination is fluorescence illumination.

14. (Previously presented) The method according to claim 9, further comprising illuminating the objects in the flow cuvette with a defined spectral intensity distribution of the incident light by a suitable light source or the insertion of one or more suitable filters.

15. (Previously presented) The method according to claim 9 further comprising illuminating the optical sensor with a defined spectral intensity distribution of the incident light by a suitable light source or the insertion of one or more suitable filters enables the optical sensor to be illuminated with a defined spectral intensity distribution of the incident light.

16. (Previously presented) The method according to claim 8, wherein the illumination is one or more of the following: bright field, dark field, and phase contrast illumination.

17. (Previously presented) The method according to claim 1, further comprising admixing the suspension with stains prior to the introducing step.

18. (Previously presented) The method according to claim 14, further comprising changing the one or more filters automatically or manually.

19. (Cancelled)

20. (Previously presented) A device for recording microscopic images with high optical resolution of particles or organisms suspended in a liquid, wherein the suspension is introduced in a flow cuvette, and the image is recorded by an optical sensor, and further wherein the optical sensor and flow cuvette are movable along the flow cuvette and the contents of the measuring cell can be imaged.

21. (Previously presented) The device according to claim 20, wherein a light source is situated on one side of the flow cuvette, and an objective sensor and the optical sensor are located on the other, opposite side of the measuring cell.

22. (Previously presented) The device according to claim 20 wherein a light source is situated on the same side of the flow cuvette as an objective sensor, and the optical sensor.

23. (Cancelled)

24. (Cancelled)

25. (Previously presented) The method according the claim 8, further comprising providing a screen and lens system on the same side of the flow cuvette as the light source.

26. (Previously presented) The method of claim 8 wherein the screen and lens system is a condenser.

27. (Previously presented) The method of claim 9, wherein the illumination is fluorescence illumination, spectral intensity distribution of the incident light, or a combination thereof.

EVIDENCE APPENDIX

No evidence was filed.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.